

THE GENUS *GONIOTHALAMUS* (BLUME) J.D.HOOK. & THOMSON (ANNONACEAE) IN AUSTRALIA

L.W. Jessup

Queensland Herbarium, Meiers Road, Indooroopilly, Qld 4068

Summary

A new species *Goniothalamus australis* from north-eastern Queensland is described thereby extending the known distribution of the genus to Australia.

A rainforest tree occurring on the Atherton Tableland and adjacent areas tentatively known since its first collection in 1947 by L.S. Smith and L.J. Webb as *Xylopia* sp. is here described as a new species of *Goniothalamus*.

Goniothalamus australis Jessup, sp. nov.

Arbor usque 30 m alta. Folia obovata, oblongo-obovata vel elliptica, obtusa vel acuminata, supra glabra, infra glabrescenta. Lamina (5-)7-12 cm longa et (2-)3-5 cm lata; basi breviter attenuata; margines leviter recurvatae. Petiolus 3-10 mm longus. Inflorescentia axillaris vel ramala; flores solitari vel bini. Pedicelli 15-20 mm longi; bracteeae 3-5, basales. Sepala triangularia vel late ovata, acuta, 7-8 mm longa et 6-6.5 mm lata. Petala extima coriacea, ovata, recurvata lateraliter, incurvata apicale, 25-35 mm longa et 16-21 mm lata, adpressa puberulenta. Petala interiora, trullata vel rhombea, 10-12 mm longa et 7-9 mm lata, externa adpressa puberulenta, margines breviter tomentosa, intra glabra. Stamina 1.4 mm longa; connectiva pulvinata. Carpella plerumque 9-11; ovaria glabra. Ovula 5-7. Stigma infundibuliforma rima intra praedita, hispida. Monocarpia matura oblonga vel ellipsoidea, obtusa vel apiculata, breviter stipitata, 3-6 cm longa et 1.5-2.5 cm lata. Semina oblonga, oblique truncata, ca 2 cm longa; testa laevis, hirtella, rubro-brunnea. **Typus:** Lamins Hill, ca 12 km E of Malanda, Atherton Tableland, 17°23'S, 145°42'E, 12 Dec 1984, L.W. Jessup 764 (holotypus BRI, isotypi A, BRI, K, L, MO, P, QRS, U).

Tree to 30 m high and 45 cm d.b.h., often less than 20 m and 15 cm d.b.h. Outer bark shallowly wrinkled, brown. Shoots appressed pubescent with red-brown antrorse hairs. Branchlets smooth, glabrescent. Leaves obovate, oblong-obovate or elliptic, obtuse or acute with a blunt tip, glabrous above, glabrescent below. Lamina (5-) 7-12 x (2-) 3-5 cm; base shortly attenuate; margins slightly recurved; midvein shallowly channelled above, raised below; secondary veins mostly 9-12 pairs, slightly raised on both surfaces in dry material scarcely visible in fresh material; tertiary and higher order venation reticulate, inconspicuous. Petiole channelled above, 3-10 mm long. Inflorescence axillary or ramal; flowers solitary or paired. Pedicels 15-20 mm long, glabrous or with a few appressed hairs; bracts 3-5, basal, ovate, ca 1 mm long, caducous. Sepals 3, triangular or broadly ovate, acute, 7-8 mm x 6-6.5 mm, glabrescent. Outer petals 3, coriaceous, ovate, laterally recurved, apically incurved, 25-35 mm x 16-21 mm, appressed puberulent. Inner petals 3, trullate or rhombic, 10-12 mm x 7-9 mm, clawed, concave inside, cohering along broad upper margins forming a vaulted cap, appressed puberulent outside, shortly tomentose along margins, glabrous inside. Stamens numerous, oblong, slightly tapered, ca 1.4 mm long, connectives pulvinate at apex, concealing anthers; anthers septate. Carpels mostly 9-11; ovaries ± cylindrical with an inside longitudinal groove, straight or slightly curved below apex, 2.5-2.7 mm long, glabrous. Ovules usually 5-7, superposed. Style short, tapering to a funnel-shaped, hispid stigma with an inside slit contiguous with groove in ovary. Margins of slit usually overlapping. Ripe monocarp oblong or ellipsoid, obtuse or apiculate, shortly stalked, 3-6 cm x 1.5-2.5 cm. Seeds oblong, obliquely truncate, ca 2 cm long; testa smooth, hirtellus, red-brown. **Fig. 1.**

Queensland, COOK DISTRICT: Mt Finnigan, (15°47'S, 145°17'E), 25 Aug 1972, Webb & Tracey 12107 (BRI); Mt Hemmant, just N of Noah Creek, (16°06'S, 145°26'E), Jul 1973, Webb & Tracey 11747 (BRI), 11977 (BRI); T.R.142, Zarda L.A., (16°25'S, 145°15'E), Sep 1973, Hyland 6897 (BRI, QRS); near Schillers hut, Mt Spurgeon, (16°26'S, 145°12'E), Sep 1972, Webb & Tracey 11789 (BRI); Mt Misery on Mt Carbine Tableland, (16°27'S, 145°06'E), Sep 1972, Webb & Tracey 11682 (BRI); S.F.R. 143, North Mary L.A., (16°30'S, 145°16'E), Sep 1973, Sanderson 334 (BRI, QRS); S.F.R. 143, South Mary L.A., (16°31'S, 145°15'E), Feb 1979, Gray 1264 (BRI, QRS); end of Mt Lewis rd, (16°35'S, 145°15'E), Aug 1957, Smith 10076 (BRI); Mt Bellenden Ker, 13 Jun 1969, Smith

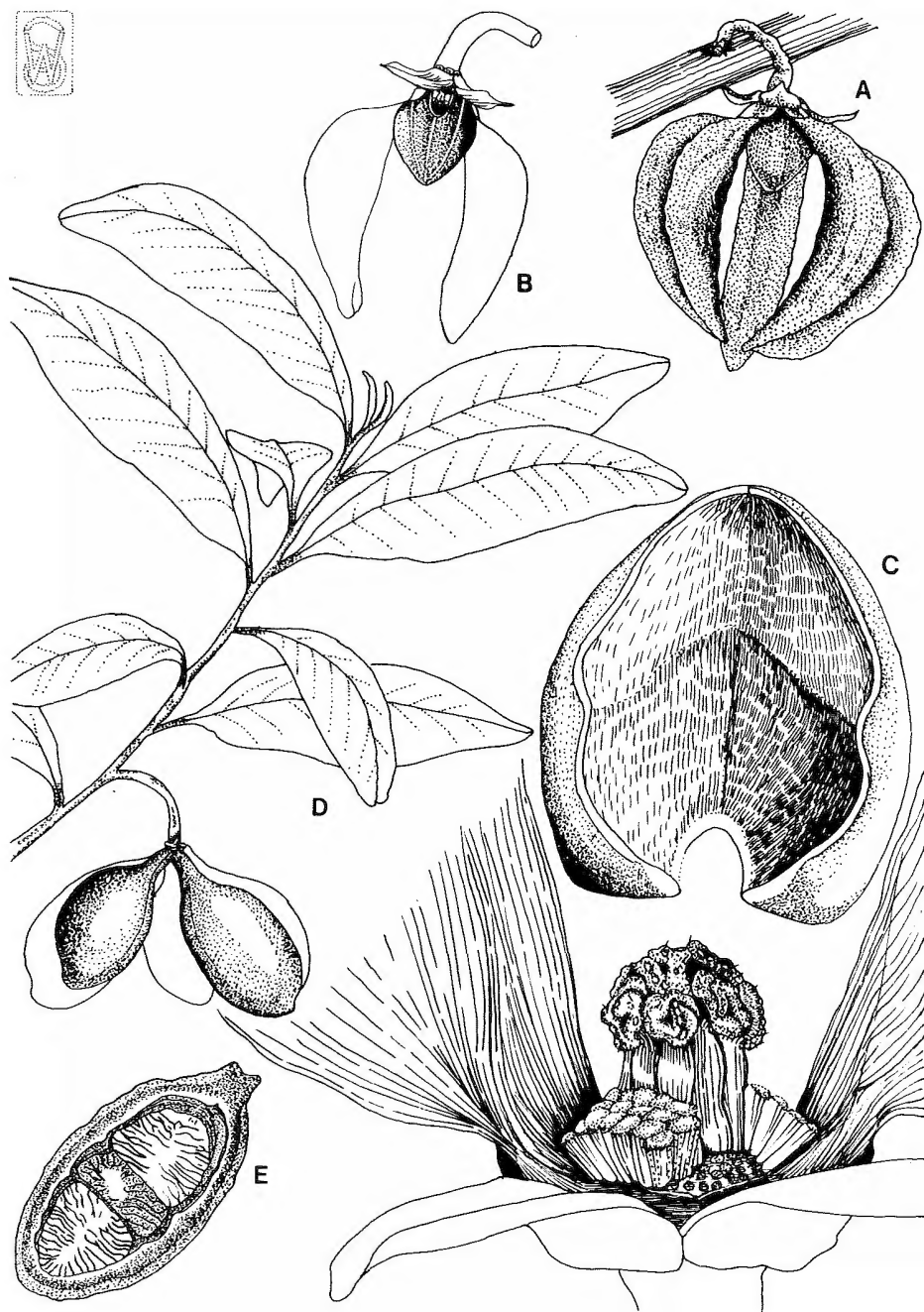


Fig. 1. *Goniothalamus australis*: A. flower (Jessup 764) $\times 1$. B. flower with 1 outer petal removed (Sankowsky 291) $\times 1$. C. detail of flower, 1 outer petal removed, inner cap detached and 1 petal removed, some stamens removed (Jessup 764) $\times 6$. D. habit, in fruit (Jessup 522) $\times 1/2$. E. longitudinal section of monocarp (Hamilton, 20 Jan 1975) $\times 1$.

14707 (BRI); S.F.R. 310, Gadgarra, (17°15'S, 145°45'E), Oct 1968, *Hyland* 2013 R.F.K. (BRI); S.F.R. 310, Windin L.A., (17°15'S, 145°40'E), Jan 1957, *White* 1326 (BRI); S.F.R. 310, Swipers L.A., (17°15'S, 145°45'E), Mar 1969, *Hyland* 2201 R.F.K. (BRI); Jagan, Malanda-Millaa-Millaa rd, (17°23'S, 145°36'E), Nov 1981, *Gray* 2301, (BRI, QRS); Lamins Hill, junction of Old Boonjie rd and Topaz rd, (17°23'S, 145°42'E), Nov 1982, *Jessup* 522 (BRI); Lamins Hill, ca 12 km E of Malanda, (17°23'S, 145°42'E), Dec 1984, *Jessup* 764 (A, BRI, K, L, MO, P, QRS, U); Nov 1983, *Sankowsky* 291 (BRI); Hosie Rd, Tarzali, (17°25'S, 145°35'E), Jan 1975, *Hamilton* (QRS); T.R. 1230, Boonjie, (17°25'S, 145°45'E), Nov 1972, *Irvine* 409 (BRI, QRS); 18 Dec 1972, *Irvine* 425 (BRI, QRS); along road SE of Tarzali and S of Bartletts Hill (17°26'S, 145°38'E), Feb 1983, *Tracey* 14973 (BRI, QRS); Topaz, near Malanda, (17°26'S, 145°43'E), Aug 1947, *Smith* 3300 & *Webb* (BRI). [S.F.R. = State Forest Reserve; T.R. = Timber Reserve; L.A. = Logging Area].

This species occurs in upland mesophyll and submontane notophyll vine forest in a variety of soil types on the eastern edge of the Atherton Tableland and adjacent mountains north to Mt Finnigan.

The genus *Goniothalamus* (Blume) J.D. Hook. & Thomson consists of about 100 species distributed from China and India, through SE Asia and Malesia to Australia.

Nguyen Tien Ban (1974*a, b*) classified the genus into 2 subgenera based on the shape of the staminal connective. Unfortunately several species from E Malesia were not included in this classification.

The funnel-shaped stigma and 6–7 ovules in *G. australis* Jessup suggest placement of this species in section *Infundibulistigma* Tien Ban, subsection *Polyspermi* Tien Ban. The 4 species placed in this subsection by Nguyen Tien Ban are *G. philippinensis* Merrill and *G. lancifolius* Merrill from the Philippines, *G. lowii* Merrill & Chun from Hainan and *G. laoticus* (Finet & Gagnep.) Tien Ban from Laos.

G. philippinensis differs from *G. australis* in having appressed pubescent carpels and around 17 pairs of secondary leaf veins while *G. lancifolius* differs in having outer petals 7–8 cm long and 25–30 pairs of secondary leaf veins. *G. lowii* and *G. laoticus* both differ from *G. australis* in having \pm fusiform stigmas.

Subsection *Infundibuliformes* Tien Ban contains several species with funnel-shaped stigmas similar to those seen in *G. australis* but these species have only 1 or 2 ovules per ovary. They occur in Thailand, Indo-China and Malaysia. Presumably there is a gradation between fusiform-cylindric and funnel-shaped stigmas which led Nguyen Tien Ban to base the subsections on ovule number rather than stigma shape.

Acknowledgements

I would like to thank Mr L. Pedley for reading the manuscript and checking the Latin description and Mr G. Batainoff for his Russian translation. Mr G. Sankowsky assisted with fieldwork and Mr W. Smith produced the line drawings.

References

- BAN, N.T. (1974*a*). On the taxonomy of the genus *Goniothalamus* (Blume) J.D. Hook. & Thomson (Annonaceae)
1. *Botanicheskii Zhurnal* 59(4): 547–555.
- BAN, N.T. (1974*b*). On the taxonomy of the genus *Goniothalamus* (Blume) J.D. Hook. & Thomson (Annonaceae)
2. *Botanicheskii Zhurnal* 59(5): 660–672.